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## FACSIMILE COVER SHEET

**DATE:** December 28, 2005  
**FILE NO.:** ROC920030129US1 (IBMK30129)  
**TO:** MAIL STOP APPEAL BRIEF - PATENTS  
Examiner Thanh Ha T. Dang  
**FAX NO.:** 1-571-273-8300  
**COMPANY:** USPTO  
**FROM:** Gero G. McClellan / Jon K. Stewart  
**PAGE(S) with cover:** 24  
**ORIGINAL TO FOLLOW?**  YES  NO

**RE:**  
**TITLE:** ABSTRACT DATA LINKING AND JOINING INTERFACE  
**U.S. SERIAL NO.:** 10/618,409  
**FILING DATE:** July 11, 2003  
**INVENTOR(S):** Richard D. Dettinger et al.  
**EXAMINER:** Thanh Ha T. Dang  
**GROUP ART UNIT:** 2163  
**CONFIRMATION NO.:** 5540

Attached for the above-referenced application is an APPEAL BRIEF.

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### Summary of Claimed Subject Matter

Claimed embodiments provide a method, apparatus and article of manufacture that provide an interface allowing users to specify how to link or join query result fields as part of a query composition process. See *Application*, ¶¶ 39, 54, 71-94, Abstract. The interface may display a set of input cells for user-selected logical result fields. See *Application*, ¶¶ 82-83. Users select the location of a logical result fields to specify how to link or join sets of data retrieved for the query result fields. See *Application*, ¶¶ 83-87.

One claimed embodiment (see e.g., claims 21-24) provides a method for building queries. The method includes, providing a logical model to logically describe the physical fields, the logical model comprising logical fields corresponding to respective physical fields. See *Application*, ¶¶ 41-53 (physical view of database environment) and ¶¶ 54-70 (logical view of database environment). The method also includes providing a graphical user interface allowing user selection and arrangement of logical result fields selected from the logical model. See *Application*, ¶ 83, 84 Figure 14, 1400 (result field linking GUI and table 1404), Figures 15-16. Using the result field linking GUI, users specify a selection and a location, in the graphical user interface, of a first logical result field and a second logical field. See *Id.* The relative geometric relationship of the first and second logical result fields define at least a portion of an abstract query. See *application*, ¶ 84 ("The user determines the structure of the resulting query by selecting the relative position of the available result fields"). The method also includes transforming the abstract query into an executable query containing at least one combinatorial statement containing representations of the first and second logical result fields, and being generated as a result of the relative geometric relationship. See *Application*, ¶ 84, 89, Figures 3, 4, 16, 17.

Another claimed embodiment (see e.g., claims 25, 26), includes a computer readable medium containing a graphical user interface program configured to perform an operation for building abstract queries. The operation includes receiving user input specifying a selection and a location, in the graphical user interface, of a first logical result field (see *Application*, ¶ 83, 84 Figure 14, 1400, 1404); wherein the graphical user interface allows user selection of logical result fields from the logical model and

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supports combinatorial relations between user selected logical result fields. See *Application*, ¶ 83, Figure 14, 1400 (result field linking GUI and table 1404), Figures 15-16.

This embodiment also includes receiving user input specifying a selection and a location, in the graphical user interface, of a second logical result field, wherein the first and second logical result fields define at least a portion of an abstract query, which is transformed into an executable query containing at least one combinatorial statement containing counterparts of the first and second logical result fields. See *Id., application*, ¶ 84 ("The user determines the structure of the resulting query by selecting the relative position of the available result fields"). The operations of this embodiment may also include (see e.g., claim 26) transforming the abstract query into an executable query containing at least one combinatorial statement containing counterparts of the first and second logical result fields, and being generated as a result of the relative geometric relationship. See *Application*, ¶ 84, 89, Figures 3, 4, 16.

Still another claimed embodiment (see e.g., claims 31-33) includes a computer system, comprising memory and at least one processor. See *Application*, Figure 1. This embodiment also includes a logical model comprising a plurality of logical field definitions mapping to physical fields of physical entities of data, whereby the logical model provides a logical view of the data. See *Application*, 41-53 (physical view of database environment) and 54-70 (logical view of database environment). This embodiment also includes a graphical user interface allowing user selection and arrangement of logical result fields selected from the logical mode. See *Application*, ¶ 83, Figure 14, 1400 (result field linking GUI and table 1404), Figures 15-16. The graphical user interface includes input cells for user-selected logical result fields and wherein a predefined geometric relationship between cells specifies whether user-selected logical result fields in the cells are related by a first combinatorial statement type or a second combinatorial statement type. See *Id., See application*, ¶ 84 ("The user determines the structure of the resulting query by selecting the relative position of the available result fields").

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**Grounds of Rejection to be Reviewed on Appeal**

1. Claims 24-27 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,963,938 issued to *Wilson et al.* (hereinafter "*Wilson*").
2. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,694,306 issued to *Nishizawa et al.* (hereinafter "*Nishizawa*") and further in view of *Wilson*.
3. Claims 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishizawa* and further in view of *Wilson* as applied to claim 29 above, and further in view of U.S. Patent No. 6,640,221 issued to *Levine et al.* (hereinafter "*Levine*").
4. Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishizawa* and further in view of *Wilson*.
5. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Wilson* as applied to claim 26 above, and further in view of *Levine*.

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## ARGUMENTS

### **Obviousness of Claims 21-23, 29 over *Nishizawa* and further in view of *Wilson*.**

Claims 21-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Nishizawa* and in view of *Wilson*.

The Examiner bears the initial burden of establishing a *prima facie* case of obviousness. See MPEP § 2142. To establish a *prima facie* case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one ordinary skill in the art to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. See MPEP § 2143. The rejection of claims 21-23 and 29 fails to establish at least the first and third criteria.

The Examiner argues that *Nishizawa* discloses "providing a logical model to logically describe the physical fields, the logical model comprising logical fields corresponding to respective physical fields" as recited by claim 21 and "a logical model comprising a plurality of logical field definitions mapping to physical fields of physical entities of data, whereby the logical model provides a logical view of the data, each of the definitions comprising a logical field name, at least one location attribute identifying a location of physical data corresponding to the logical field name and a reference to an access method selected from at least two different access method types" as recited by claim 29.

Specifically, the Examiner relies on *Nishizawa*, 1:38-48, and *Nishizawa*, 3:48-61. However, the cited passages are in fact directed to extensions made to a database schema using "virtual tables" and "partial replicas." The cited passages from *Nishizawa* disclose that "Columns in the virtual table are mapped to columns in tables in real databases, or columns in views in real databases, or columns in another virtual table (all these are hereinafter simply referred to as columns in databases) or calculation results

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for these columns, and columns in the virtual table are referenced by an application and queries are issued not to columns in databases but to columns in the virtual table."

*Nishizawa*, 3:51-53. However, as described above, "virtual" or otherwise, the queries are composed according to a schema of tables and columns. Thus, Applicants submit that *Nishizawa* fails to disclose the recited limitation of providing a logical model whereby physical fields are exposed via logical fields having their own definitions (i.e., separate from the schema of the physical fields).

*Nishizawa* is directed to modifications made to a relational database schema using "virtual tables" and "partial replicas." These two constructs however, are used to integrate multiple relational databases, and not to provide a logical model or an abstraction thereof. For example, in describing these elements, *Nishizawa* provides:

a query issued to a schema composed of virtual tables is converted to access real databases. ... The approach of accessing real databases through a virtual schema, which is called database integration or schema integration, has been studied by many researchers in the academic society since around 1980.

*Nishizawa*, 1:43-50. As this passage demonstrates, *Nishizawa* discloses a technique for integrating multiple databases constructed according to the schema of "virtual tables." When a user composes a query, the user must do so according to the schema of virtual tables, which requires the user to understand the schema. This is confirmed by *Nishizawa* at 5:34-38, which provides: "a virtual table is a logical integration of multiple real databases and the columns in the virtual table are mapped to the columns in multiple real databases." In other words queries disclosed in *Nishizawa* are always relational queries (e.g., SQL queries) composed to retrieve data from defined tables, whether virtual or otherwise, on the basis of the underlying schema.

Regardless of the applicability of *Nishizawa*; however, the Advisory Action dated October 13, 2005 does not even address Applicants' remarks regarding the *Wilson* reference. The *Wilson* reference was first cited by the Examiner in a Final Office Action dated July 28, 2005 to support the rejection regarding a majority of the limitations recited by claims 21 and 29.

Generally, *Wilson* is directed to a method adapted for users "to select criteria for use in execution of a logical function, such as a search ... [that] may rely on a graphical

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user interface." See, *Wilson*, Abstract. The interface disclosed by *Wilson* allows users to specify various "relations" that include a "field," an "operator", and "a value." See e.g., *Wilson*, 3:60-66, Figure 5. For example, Figure 8 illustrates the relation: "Last name = Wilson." *Wilson* excludes Boolean operations such as a logical "OR" or "AND" from the operators that may be used to compose a relation. See *Wilson* 11:1-5. Instead, "OR" and "AND" operators are used to group relations as "inter-" and "intra-group" Boolean operations. *Wilson*, 13:33-52. *Wilson* discloses that when a user specifies a "relation" to include in a search function, the user specifies the substantive field, operator and value, along with a group to which the relation may belong. Further, to organize the relations defined for a given search, *Wilson* discloses that the relations may be grouped together according to the Boolean relations selected for any inter- or intra-group Boolean operations defined by a user (i.e., the "OR" and "AND" operators excluded from the definition of a relation).

*Wilson* itself provides an excellent summary:

In summary, a user may create any number of logical relations 150 and Boolean relations 151 by selection of arguments 87, 89 related by logical operators 94 to form the logical relations 150. Similarly, any number of logical relations 150 may be related by Boolean operators 95 in Boolean relations. Boolean relations may be grouped in order to control the order of operations. .... The graphical presentation, along with removal of the Boolean NOT, as a Boolean, contribute to the clarification and intuitive nature of the template 80.

*Wilson*, 17:55-67. As disclosed in *Wilson*, the location of display elements (i.e., both intra- and inter-group relations) is dependent on how the user composes a query from the relations and Boolean operators. The actual selections are organized to "contribute to the clarification and intuitive nature of the template." During the relation composition process, the user does not perform any actions to specify a location in the interface for a given relation. Moreover, the relative geometric positions of interface elements are irrelevant to the process of user actions to create "any number of logical relations 150 and Boolean relations 151," and to the process of generating an actual query for execution. Rather, the organization is provided to give the user some reasonable

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understanding of the relations being defined for a search function as it is being composed.

Thus, *Wilson* discloses an interface that is configured to display different query elements based on the groups of relations defined by a user. The relative arrangement of the relations on an interface is dependent on the particular relations and groups defined by a user. In stark contrast, claims 21 and 29 recite almost the exact opposite: users select a location in the graphical user interface for a logical result field to specify aspects of the query. Put simply, *Wilson* discloses that the elements of the query may be organized to provide a clear and intuitive user interface; conversely, claims 21 and 29 recite a limitation wherein the arrangement of elements in the graphical user interface define the query.

The Examiner also references Figures 10-12; however, these figures also fail to disclose user input specifying a location. Instead, these figures make clear that the user provides the field, "an "operator", and "a value" to define "any number of logical relations," without selecting a location or defining a query element with respect to a relative geometric position of a first and second logical results field, in the manner claimed.

Further, *Wilson* is directed to selecting criteria for searching or evaluating data. What query results should be returned is generally not addressed. For example, as shown in *Wilson*, Figures 3-12 the only reference to what should be retuned is generically referred to as "Find entries where...." As described in Applicants specification at ¶¶ 82-83, database queries generally include two components. First, what a user is looking for, i.e., data selection conditions. And second, what data (i.e., what result fields) a user wants retrieved from a database that is responsive to the selection conditions. The two elements, however, need not, and often do not, overlap with one another. Applicants submit that *Wilson*, is clearly directed to the latter – to an interface displaying query selection conditions, and not, to allowing user selection and arrangement of logical result fields, as recited by claim 21 and 29.

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In addition to the rejection of claims 21 and 29, these same passages from *Wilson* are cited by the Examiner in support of the rejection of claims 22, 23, Applicants respectfully submit, for all the reasons given above, that the Examiner's reliance on *Wilson* is misplaced. Therefore, the claims are believed to be allowable and allowance of the same is respectfully requested.

**Obviousness of Claim 30-33 over *Nishizawa* in view of *Wilson* and further in view of *Levine***

Claims 30-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishizawa* in view of *Wilson* and further in view of *Levine*. However, claims 30-33 depend from independent claim 29. Applicants believe that the above arguments regarding the *Wilson* reference obviate the need for a detailed discussion of this rejection.

**Anticipation of Claims 24-27 by *Wilson* under 35 § U.S.C. 102(b)**

Claims 24-27 are rejected under 35 § U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,963,938 issued to *Wilson*. Applicants respectfully traverse this rejection.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

In this case, *Wilson* does not disclose "each and every element as set forth in the claim." For example, *Wilson* does not teach receiving user input receiving user input specifying a selection and a location, in the graphical user interface, of a first logical result field; wherein the graphical user interface allows user selection of logical result fields from the logical model and supports combinatorial relations between user selected logical result fields, as recited by claims 24 and 26. The Examiner asserts that *Wilson* at 9:54-67 and 10:1-23 discloses this element. However, as described above,  
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these passages are directed to a graphical dialog box that allows users to define "any number of logical relations 150 and Boolean relations 151 by selection of arguments 87, 89 related by logical operators 94 to form the logical relations 150." The arrangement of the different relations displayed on an interface is dependent upon the query specified by a user. Claims 24 and 26, however, recite the converse: the query itself is dependent upon the selection of a query result field and the selection of the location of the query result field in the graphical user interface.

Specifically, claim 24 recites: receiving user input specifying a selection and a location, in the graphical user interface, of a second logical result field, wherein the first and second logical result fields define at least a portion of an abstract query. And claim 26 recites: receiving user input specifying a selection and a location, in the graphical user interface, of a second logical result field, wherein the first and second logical result fields have a relative geometric relationship and define at least a portion of an abstract query. In both of these claims, the query executed depends on the *user selected* location for a logical result field; not the other way around as disclosed in *Wilson*.

Further, claim 26 goes on to recite the limitation of receiving user input specifying a selection and location ... [of a first and second logical field result], wherein the first and second logical field results have a relative geometric relationship ... and transforming the executable relationship ... as a result of the relative geometric relationship. The Examiner asserts that *Wilson* discloses the transforming step recited by claim 26 at *Wilson*, 12:17-20. Set out in full, this passage provides:

... Any logical function executed by an application running on a processor 12 may be included in the basic function initiated by the initiate step 72.

*Wilson*, 12:17-20. The passage appears to have no relationship to the recited limitation of "transforming the abstract query into an executable query containing at least one combinatorial statement containing counterparts of the first and second logical result fields, and being generated as a result of the relative geometric relationship."

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Accordingly, for all the reasons set forth above, *Wilson* fails to teach or suggest the limitations recited by claims 24 and 26. Therefore, Applicants submit that claims 24, 26, and dependent claim 25 is allowable, and Applicants respectfully request that these claims be allowed.

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**Obviousness of Claim 28 over *Wilson* in view of *Levine***

Claim 28 is rejected under 35 U.S.C. § 103(a) as being unpatentable over *Wilson* in view of *Levine*. However, claim 28 depends from independent claim 26. Applicants believe that the above arguments regarding the *Wilson* reference as applied to claim 26 obviate the need for a detailed discussion of this rejection.

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## CONCLUSION

The Examiner errs in finding that

- claims 21-23 and 29 are unpatentable over *Nishizawa* in view of *Wilson*;
- claims 30-33 are unpatentable over *Nishizawa* in view of *Wilson*, and further in view of *Levine*;
- claims 24-27 are anticipated *Wilson*; and
- claim 28 are unpatentable over *Wilson* in view of *Levine*.

Withdrawal of the rejection and allowance of all claims is respectfully requested.

Respectfully submitted,

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## CLAIMS APPENDIX

21. (Original) A method for building queries, comprising:
- providing a logical model to logically describe the physical fields, the logical model comprising logical fields corresponding to respective physical fields;
  - providing a graphical user interface allowing user selection and arrangement of logical result fields selected from the logical model;
  - receiving user input specifying a selection and a location, in the graphical user interface, of a first logical result field;
  - receiving user input specifying a selection and a location, in the graphical user interface, of a second logical result field, wherein the first and second logical result fields have a relative geometric relationship and define at least a portion of an abstract query; and
  - transforming the abstract query into an executable query containing at least one combinatorial statement containing representations of the first and second logical result fields, and being generated as a result of the relative geometric relationship.
22. (Original) The method of claim 21, wherein the combinatorial statement is a UNION.
23. (Original) The method of claim 21, further comprising displaying each of the logical fields of the logical model as selectable logical result fields in the graphical user interface.
24. (Original) A computer readable medium containing a graphical user interface program which, when executed, performs an operation for building abstract queries defined with respect to a logical model comprising a plurality of logical field definitions mapping to physical fields of physical entities of the data, the operation comprising:
- receiving user input specifying a selection and a location, in the graphical user interface, of a first logical result field; wherein the graphical user interface allows user

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selection of logical result fields from the logical model and supports combinatorial relations between user selected logical result fields; and

receiving user input specifying a selection and a location, in the graphical user interface, of a second logical result field, wherein the first and second logical result fields define at least a portion of an abstract query, which is transformed into an executable query containing at least one combinatorial statement containing counterparts of the first and second logical result fields.

25. (Original) The method of claim 24, wherein the combinatorial statement is a UNION.

26. (Original) A computer readable medium containing a program which, when executed, performs an operation for building abstract queries defined with respect to a logical model comprising a plurality of logical field definitions mapping to physical fields of physical entities of the data, the operation comprising:

receiving user input specifying a selection and a location, in a graphical user interface, of a first logical result field; wherein the graphical user interface allows user selection and arrangement of logical result fields selected from the logical model;

receiving user input specifying a selection and a location, in the graphical user interface, of a second logical result field, wherein the first and second logical result fields have a relative geometric relationship and define at least a portion of an abstract query; and

transforming the abstract query into an executable query containing at least one combinatorial statement containing counterparts of the first and second logical result fields, and being generated as a result of the relative geometric relationship.

27. (Original) The computer readable medium of claim 26, wherein the combinatorial statement is a UNION.

28. (Original) The computer readable medium of claim 26, wherein the relative geometric relationship is vertical.

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29. (Previously Presented) A computer system, comprising memory and at least one processor, and further comprising:

a logical model comprising a plurality of logical field definitions mapping to physical fields of physical entities of data, whereby the logical model provides a logical view of the data, each of the definitions comprising a logical field name, at least one location attribute identifying a location of physical data corresponding to the logical field name and a reference to an access method selected from at least two different access method types; wherein each of the different access methods types defines a different manner of exposing the physical data corresponding to the logical field name of the respective logical field definition;

a query specification defining an interface to the plurality of logical field definitions thereby allowing abstract queries to be composed on the basis of the plurality of logical field definitions; and

a graphical user interface allowing user selection and arrangement of logical result fields selected from the logical model; wherein the graphical user interface comprises input cells for user-selected logical result fields and wherein a predefined geometric relationship between cells specifies whether user-selected logical result fields in the cells are related by a first combinatorial statement type or a second combinatorial statement type.

30. (Original) The system of claim 29, wherein the first combinatorial statement type is a UNION and the second combinatorial statement type is a JOIN.

31. (Original) The system of claim 29, wherein the predefined geometric relationship is vertical.

32. (Previously Presented) The system of claim 29, wherein user-selected logical result fields in horizontally adjacent cells are JOINed.

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33. (Original) The system of claim 29, further comprising a relational database containing the physical entities of data.

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### RELATED PROCEEDINGS APPENDIX

No copies of decisions rendered by a court or the Board in the related appeal or interference listed on page 4 of this Brief are included as there have been no decisions by the court or the Board in the related appeal or interference listed on page 4 of this Brief.